PATENT SPECIFICATION (11) 1 512 017

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(21) Application No. 32417/74 (22) Filed 22 Jul. 1974

(23) Complete Specification Filed 26 Jun. 1975

(44) Complete Specification Published 24 May 1978

(51) INT. CL.[2] A43D 1/02

(52) Index at Acceptance G1X 18

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(19)

(54) IMPROVEMENTS IN OR RELATING TO FOOT MEASURING APPLIANCES

(71) We, CLARKS LIMITED, a British Company, of Street, Somerset, do hereby declare the invention, for which we pray that a Patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:-

This invention relates to foot measuring appliances.

According to this invention there is provided a foot measuring appliance comprising a platform for supporting a foot to be measured which platform has a heel stop projecting above and fixed with respect to the platform, a toe stop projecting above the platform and mounted for rectilinear movement towards and away from the heel stop, and a girth measuring device mounted intermediate the heel and toe stops and movable towards and away from the heel stop, and a drive mechanism interconnecting the toe stop and girth measuring device which mechanism comprises two gearwheels rotatably mounted on the girth measuring device and coupled together for rotation, each about an axis at right angles to the direction of said rectilinear movement, a first rack fixed with respect to and extending lengthwise of the platform which rack meshes with one of said gearwheels, and a second rack which extends lengthwise of the platform and is mounted to move with the toe stop and which meshes with the other of said gearwheels, the arrangement being such that the distance between the girth measuring device and the heel stop is automatically maintained at substantially three quarters of the distance between the heel and toe stops for all positions of the toe stop.

Practical tests have established that in most cases, the maximum girth of the foot occurs at a distance of about threequarters (optimally 72%) of the length of the foot from the heel end, and the appliance thus automatically places the girth measuring device at the appropriate position lengthwise of the foot.

In preferred arrangements, the two gearwheels are disposed coaxially, and in a particularly advantageous arrangement the two gearwheels are fixed together for rotation, the effective diameter of said other gearwheel being substantially three-quarters of that of said one gearwheel.

One embodiment of the invention will now be described by way of example with reference to the accompanying drawings in which:

Figure 1 shows an exploded view of a foot measuring appliance according to the invention, and

Figure 2 shows the assembled appliance.

Referring to the drawings the appliance includes a foot support having three main components 10, 11 and 12. Component 10 is a base comprising a pedestal 13 to which a plate 14 is secured so as to be inclined downward from its heel to its toe end. Plate 14 has two hollow bosses 15 to receive fixing screws (not shown). Component 10 fits against the underside of the bottom wall 11*a* of component 11, the centre portion of the upper side of component 11 being open and surrounded by an upstanding side wall 16. The side wall is raised above a short platform portio 17 at the heel end of the support to provide a heel stop 18. A bridge piece 19 formed with hollow bosses 20 extends across the component near the heel end, bosses 20 being aligned with bosses 15 in component 10. A first toothed rack 21 is secured to the upper face of the bottom wall 11*a* at a position laterally offset from the longitudinal centre line of the component.

Component 12 is a flat support plate which rests in a recess 22 at the toe end of component 11 and on the bridge piece 19. Plate 12 has its upper surface 23 disposed to form a smooth continuation of the portion 17 of component 11 and forms therewith a platform for a foot to be measured. The screws extending through bosses 15 and 20 in components 10 and 11 are received in screw threaded holes (not shown) in the underside of support plate 12 to hold the three support components together.

The side edges of support plate 12 are formed with lengthwise extending slots 25, and a toe stop 26 which bridges the support plate has keys 27 on the inner surfaces of its side plates 28 which keys are respectively slidably engaged in slots 25. The toe stop has a vertical

abutment face 29 above plate 12. The toe stop has secured to it a flat horizontal part 30 which in the assembled appliance is disposed below and close to the underside of support plate 12. Portion 30 has a central slot 31 on one side of which are formed rack teeth constituting a second rack 32.

A cover plate shown at 26*a* fits over a corresponding aperture in the front face of the toe stop.

A girth measuring device 35 is disposed between the toe and heel stops. The device has a central flat portion 36 with upstanding blocks 37*a*, 37*b* at its side edges having keys 38 which are slidably engaged in slots 25 in the assembled appliance. The central portion 36 is disposed below the part 30 attached to the toe stop. A hole 40 in the central portion 36 provides a bearing for a short central shaft portion 42 of a gear unit comprising two gear wheels 43, 44 fixed on opposite ends of the shaft portion. The two gearwheels 43, 44 respectively mesh with the two racks 32,21. Gearwheel 43 has an effective diameter equal to threequarters of that of gearwheel 44.

The girth measuring device includes a strap 45 one end of which is anchored in a slot in block 37*a* and the other end of which extends through a slot in block 37*b*. The strap has graduations along its length and the length of strap extending across the foot to an index (provided by the entry to the slot in block 37*b*) is a measure of the girth of the foot.

In operation of the device, the heel of the foot is placed against the heel stop 18 and the toe stop is moved so that its abutment face 29 touches the toe end of the foot. This movement causes gearwheels 43, 44 to rotate by reason of the engagement of gearwheel 44 with rack 32. Since gearwheel 43 is constrained by its engagement with rack 21 and by its lesser diameter, to move a lesser distance lengthwise with respect to its rack, the gear unit and hence the girth measuring device as a whole, moves only threequarters of the distance moved by the toe stop. This places the girth device automatically at the point where the girth is greatest, but it will be apparent that the appliance must be correctly assembled initially in that the girth measuring device must initially be placed at a distance from the heel stop equal to threequarters of the distance between the toe and heel stops. Otherwise there will be an error through the whole range of movement of the toe stop and girth measuring device.

WHAT WE CLAIM IS:-

1. A foot measuring appliance comprising a platform for supporting a foot to be measured which platform has a heel stop projecting above and fixed with respect to the platform, a toe stop projecting above the platform and mounted for rectilinear movement towards and away from the heel stop, and a girth measuring device mounted intermediate the heel and toe stops and movable towards and away from the heel stop, and a drive mechanism interconnecting the toe stop and girth measuring device which mechanism comprises two gearwheels rotatably mounted on the girth measuring device and coupled together for rotation, each about an axis at right angles to the direction of said rectilinear movement, a first rack fixed with respect to and extending lengthwise of the platform which rack meshes with one of said gearwheels, and a second rack which extends lengthwise of the platform and is mounted to move with the toe stop and which meshes with the other of said gearwheels, the arrangement being such that the distance between the girth measuring device and the heel stop is automatically maintained at substantially threequarters of the distance between the heel and toe stops for all positions of the toe stop.

2. An appliance as claimed in Claim 1, wherein the two gearwheels are disposed coaxially.

3. An appliance as claimed in Claim 2, wherein the two gearwheels are fixed together for rotation, the effective diameter of said other gearwheel being substantially threequarters of that of said one gearwheel.

4. An appliance as claimed in Claim 3, wherein the girth measuring device incorporates a plate member disposed beneath the platform and having therein an aperture providing a bearing in which the two gearwheels are supported for rotation about an axis normal to the general plane of the platform, the gearwheels being disposed at opposite sides of the plate member.

5. An appliance as claimed in any one of Claims 1 to 4, wherein the girth measuring device has anchored thereto at one side of the platform one end of a strap the other end of which can be passed over a foot on the platform and through a slot provided, at the other side of the platform in the girth measuring device, the strap having a scale marked thereon along its length and the device providing an index at said other side of the platform to co-operate with the scale.

6. An appliance as claimed in any one of Claims 1 to 5, wherein the platform is mounted on a pedestal which when placed on a horizontal surface disposes the platform in an attitude in which it is inclined downward from its heel to its toe end.

7. A foot measuring appliance substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

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Printed for Her Majesty's Stationery Office, by Croydon Printing Company Limited, Croydon, Surrey, 1978.
Published by The Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.

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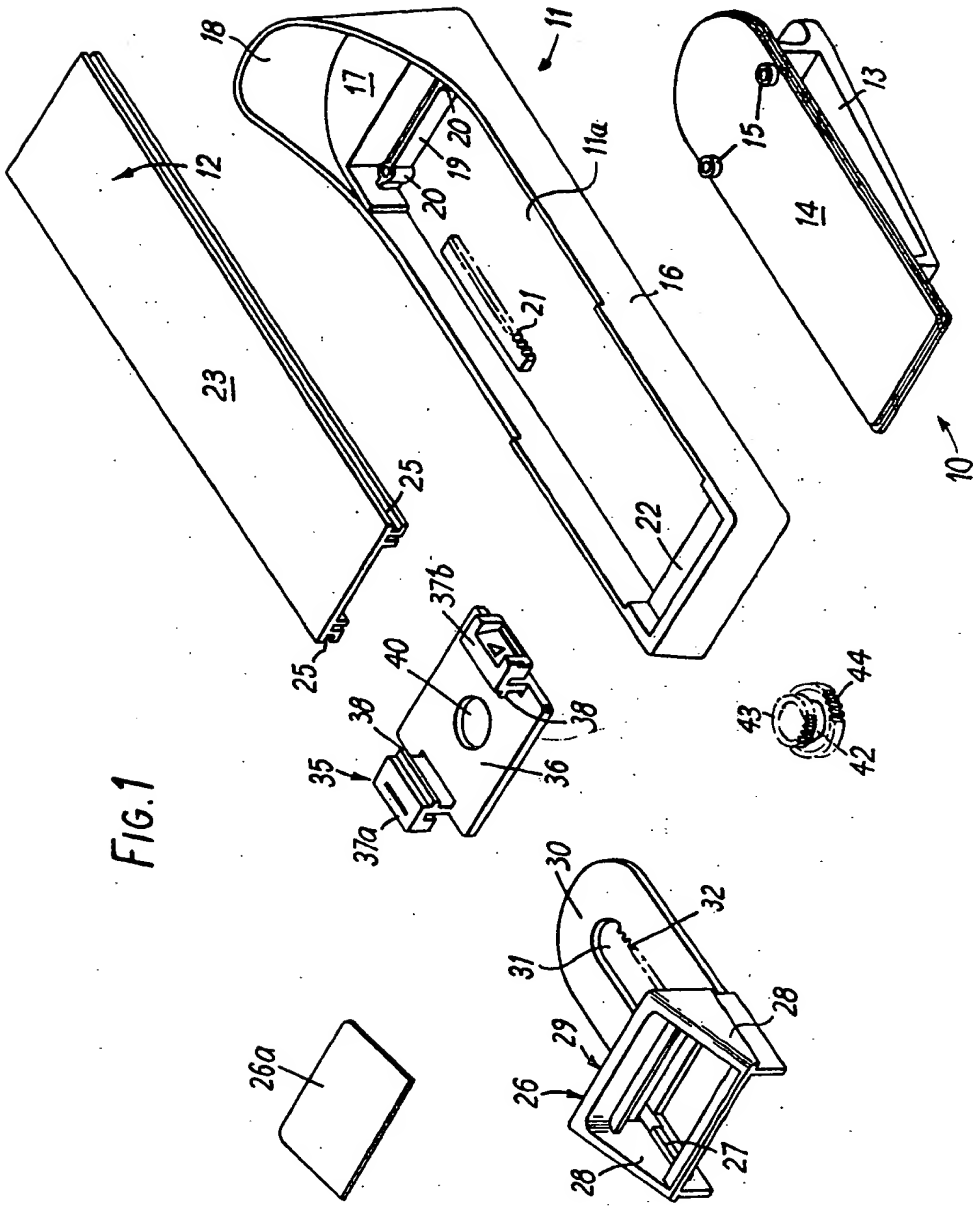

FIG. 1

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1512017 COMPLETE SPECIFICATION
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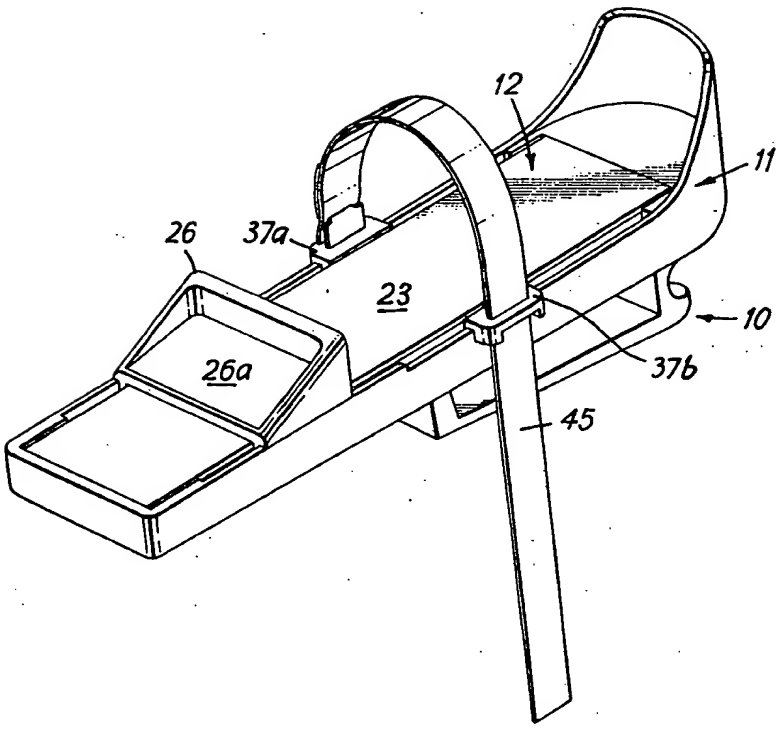
Sheet 2

FIG. 2



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